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John M. Card BRINKS HOFER GILSON & LIONE P.O. Box 10395 Chicago, IL 60610			KAO, CHIH CHENG G	
			ART UNIT	PAPER NUMBER
			2882	

DATE MAILED: 04/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.	Applicant(s)
	10/787,516	VERMAN ET AL.
	Examiner	Art Unit
	Chih-Cheng Glen Kao	2882

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 20 March 2006.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 36-59 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 36-59 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 10 June 2004 is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date _____

4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____
5) Notice of Informal Patent Application (PTO-152)
6) Other: _____

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the movable blade with the slit or pinhole, as exemplified in claims 39 and 40, must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claim 42 is objected to because of the following informalities, which appear to be minor draft errors including lack of antecedent basis problems.

In the following format (location of objection; suggestion for correction), the following corrections may obviate their respective objections: (claim 42, line 1, “the optical element”; replacing “optical element” with - -optic- -).

For purposes of examination, the claims have been treated as such. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 36, 38, 42-44, 52, 53, 55, and 57-59 are rejected under 35 U.S.C. 102(e) as being anticipated by Gutman (US 2002/0064253).

4. Regarding claim 36, Gutman discloses an apparatus comprising an optic (fig. 1, #10) which conditions an x-ray beam (fig. 1, x-rays), the optic (fig. 1, #8) defining a near end and a far end and including a first optical element defining a first reflective surface (fig. 1, top half of

#10) and a second optical element defining a second reflective surface (fig. 1, bottom half of #10) orthogonal to the first reflective surface, the first and second reflective surfaces reflecting x-rays transmitted from an x-ray source (fig. 1, linear accelerator unit), and an aperture (fig. 1, #9 and 11) which necessarily adjusts convergence of the x-ray beam by selecting a portion of the x-ray beam delivered by the optical element (fig. 1, #10).

5. Regarding claim 38, Gutman further discloses wherein the aperture includes a fixed portion (fig. 1, #8) and a movable portion (fig. 1, #9) that is movable relative to the fixed portion, the aperture being adjusted by moving the movable portion (fig. 1, #9) relative to the fixed portion (fig. 1, #8).

6. Regarding claims 42-44, Gutman further discloses wherein the optic is a two-dimensional optical element (fig. 1, #10), wherein at least one reflective surface has a substantially elliptic shape, and wherein both reflective surfaces have a substantially elliptic shape (paragraph 33).

7. Regarding claim 52, 53, and 55, Gutman further discloses wherein the first optical element is a first multilayer optic and the second optical element is a second multilayer optic, wherein the first multilayer optic and the second multilayer optic have graded d-spacing, and wherein the first multilayer optic and the second multilayer optic have laterally graded d-spacing (paragraph 33).

8. Regarding claims 57 and 59, Gutman further discloses wherein the aperture (fig. 1, #9) is positioned between the source (fig. 1, linear accelerator unit) and the first and second optical elements (fig. 1, #10), and wherein the aperture (fig. 1, #9) is attached to the near end of the optic (fig. 1, #8).

9. Regarding claim 58, Gutman further discloses wherein the aperture (fig. 1, #11) is attached to the far end of the optic (fig. 1, #8).

10. Claims 36, 42-44, and 52 are rejected under 35 U.S.C. 102(b) as being anticipated by Iwasaki et al. (US 2001/0028699).

11. Regarding claim 36, Iwasaki et al. discloses an apparatus comprising an optic (fig. 1, #1) which conditions an x-ray beam (fig. 1, from #2), the optic defining a near end and a far end and including a first optical element defining a first reflective surface (fig. 1, #1a) and a second optical element defining a second reflective surface (fig. 1, #1b) orthogonal to the first reflective surface, the first and second reflective surfaces reflecting x-rays transmitted from an x-ray source (fig. 1, #2), and an aperture (fig. 1, #6) which necessarily adjusts convergence of the x-ray beam by selecting a portion of the x-ray beam delivered by the optical element (paragraph 41).

12. Regarding claims 42-44 and 52, Iwasaki et al. further discloses wherein the optic is a two-dimensional optical element (fig. 1, #1), wherein at least one reflective surface has a substantially elliptic shape, wherein both reflective surfaces have a substantially elliptic shape,

and wherein the first optical element is a first multilayer optic and the second optical element is a second multilayer optic (paragraph 38, last 3 lines).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 36 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gutman et al. (US 6041099) in view of Jiang (US 6330301).

14. Regarding claim 36, Gutman et al. ('099) discloses an apparatus comprising an optic (fig. 5) which conditions an x-ray beam (abstract), the optic defining a near end and a far end and including a first optical element defining a first reflective surface (fig. 5, top half) and a second optical element defining a second reflective surface (fig. 5, bottom half) orthogonal to the first reflective surface, the first and second reflective surfaces reflecting x-rays transmitted from an x-ray source (fig. 4, #10), and an aperture (fig. 5, #58).

However, Gutman et al. ('099) fails to disclose an aperture which adjusts convergence of an x-ray beam by selecting a portion of the x-ray beam delivered by an optical element.

Jiang teaches an aperture which adjusts convergence of an x-ray beam by selecting a portion of the x-ray beam delivered by an optical element (col. 3, lines 30-47, and fig. 3).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the apparatus of Gutman et al. ('099) with the aperture of Jiang, since one would be motivated to make such a modification to reduce noise (col. 1, lines 58-64) as shown by Jiang.

15. Regarding claim 37, Gutman et al. ('099) further discloses wherein the aperture is a diaphragm (fig. 5, #56).

16. Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Iwasaki et al. as applied to claim 36 above, and further in view of Jiang (US 6330301).

Iwasaki et al. discloses an apparatus as recited above.

However, Iwasaki et al. fails to disclose wherein an aperture is a diaphragm.

Jiang teaches wherein an aperture is a diaphragm (fig. 1, #18 and 20).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the apparatus of Iwasaki et al. with the diaphragm of Jiang, since these apertures were art-recognized equivalents at the time the invention was made, such that the selection of any of these known equivalents would have been within the level of ordinary skill in the art. One would be motivated to make such a modification to reduce noise (col. 1, lines 58-64) as shown by Jiang.

17. Claims 38, 41, and 48-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gutman et al. ('099) and Jiang as applied to claim 36 above, and further in view of Hasegawa (US 2003/0152192).

18. Regarding claims 38, 41, and 49, Gutman et al. ('099) as modified above suggests an apparatus as recited above.

However, Gutman et al. ('099) fails to disclose wherein an aperture includes a fixed portion and a movable portion that is movable relative to the fixed portion, the aperture being adjusted by moving the movable portion relative to the fixed portion, wherein the fixed portion is a fixed blade and the movable portion is a movable blade, and wherein the fixed blade and the movable blade are each substantially L-shaped.

Hasegawa teaches wherein an aperture includes a fixed portion (fig. 6, portion under #2) and a movable portion that is movable (fig. 6, #2) relative to the fixed portion, the aperture being adjusted by moving the movable portion relative to the fixed portion, wherein the fixed portion is a fixed blade (fig. 6, blade under #2) and the movable portion is a movable blade (fig. 6, #2), and wherein the fixed blade and the movable blade are each substantially L-shaped (fig. 6).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the apparatus of Gutman et al. ('099) as modified above with the aperture of Hasegawa, since these apertures were art-recognized equivalents at the time the invention was made in that they are all apertures for controlling an x-ray beam, such that the selection of any of these known equivalents would have been within the level of ordinary skill in

the art. One would be motivated to make such a modification to more easily adjust a shape without increasing an area (paragraph 6) as shown by Hasegawa.

19. Regarding claim 48, Gutman et al. ('099) further discloses wherein blades are positioned at or near a distal end of the optic (fig. 5, #56 on right) relative to the source (fig. 4, #10).

20. Regarding claims 50 and 51, Jiang further teaches wherein the movable component is necessarily movable from a high-convergence position to a low-convergence position (col. 3, lines 30-47, and fig. 3), and wherein in the low convergence position, the movable component would necessarily occlude x-rays reflected from a far portion of the x-ray optic (fig. 1).

21. Claims 38 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gutman et al. ('099) and Jiang as applied to claim 36 above, and further in view of Hounsfield (US 3866047).

Gutman et al. ('099) as modified above suggests an apparatus as recited above.

However, Gutman et al. ('099) fails to disclose wherein an aperture includes a fixed portion and a movable portion that is movable relative to the fixed portion, the aperture being adjusted by moving the movable portion relative to the fixed portion, and wherein the fixed portion is a slit and the movable portion is a blade that moves across the slit.

Hounsfield teaches wherein an aperture includes a fixed portion (fig. 10, #68) and a movable portion that is movable (fig. 10, #69) relative to the fixed portion, the aperture being adjusted by moving the movable portion relative to the fixed portion, and wherein the fixed

portion is a slit (fig. 10, #68) and the movable portion is a blade (fig. 10, #69) that moves across the slit.

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the apparatus of Gutman et al. ('099) as modified above with the aperture of Hounsfield, since these apertures were art-recognized equivalents at the time the invention was made in that they are all apertures for controlling an x-ray beam, such that the selection of any of these known equivalents would have been within the level of ordinary skill in the art. One would be motivated to make such a modification to better control x-rays (fig. 10) as implied from Hounsfield.

22. Claims 38 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gutman et al. ('099) and Jiang as applied to claim 36 above, and further in view of Simonet (US 5204533).

Gutman et al. ('099) as modified above suggests an apparatus as recited above.

However, Gutman et al. ('099) fails to disclose wherein an aperture includes a fixed portion and a movable portion that is movable relative to the fixed portion, the aperture being adjusted by moving the movable portion relative to the fixed portion, and wherein the fixed portion is a pinhole and the movable portion is a blade that moves across the pinhole.

Simonet teaches wherein an aperture includes a fixed portion (fig. 1, #16) and a movable portion that is movable (fig. 1, #20) relative to the fixed portion, the aperture being adjusted by moving the movable portion relative to the fixed portion, and wherein the fixed portion is a

pinhole (fig. 1, #16) and the movable portion is a blade (fig. 1, #20) that moves across the pinhole.

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the apparatus of Gutman et al. ('099) as modified above with the aperture of Simonet, since these apertures were art-recognized equivalents at the time the invention was made in that they are all apertures for controlling an x-ray beam, such that the selection of any of these known equivalents would have been within the level of ordinary skill in the art. One would be motivated to make such a modification to better control x-rays (fig. 1) as implied from Simonet.

23. Claims 45-47, 54, and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gutman as applied to claims 43, 36, and 53 above, and further in view of Gutman et al. (US 6014423).

24. Regarding claims 45-47, Gutman discloses an apparatus as recited above.

However, Gutman fails to disclose wherein one reflective surface has a substantially elliptic shape and the other reflective surface has a substantially parabolic shape, wherein at least one reflective surface has a substantially parabolic shape, or wherein both reflective surfaces have a substantially parabolic shape.

Gutman et al. ('423) teaches wherein one reflective surface has a substantially elliptic shape and the other reflective surface has a substantially parabolic shape (col. 3, lines 34-39),

wherein at least one reflective surface has a substantially parabolic shape, or wherein both reflective surfaces have a substantially parabolic shape (col. 2, lines 34-36).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the apparatus of Gutman with the shapes of Gutman et al. ('423), since these elliptic and parabolic shapes were art-recognized equivalents at the time the invention was made (col. 3, lines 34-39, of Gutman et al. ('423)), such that the selection of any of these known equivalents would have been within the level of ordinary skill in the art. One would be motivated to make such a modification for a more focused beam (col. 2, lines 37-38) as shown by Gutman et al. ('423).

25. Regarding claim 54, Gutman discloses an apparatus as recited above.

However, Gutman fails to disclose wherein a first multilayer optic and a second multiplayer optic have depth graded d-spacing.

Gutman et al. ('423) teaches wherein a first multilayer optic and a second multiplayer optic have depth graded d-spacing (col. 3, lines 60-63).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the apparatus of Gutman with the d-spacing of Gutman et al. ('423), since lateral and depth graded d-spacing were art-recognized equivalents at the time the invention was made (col. 3, lines 60-63, of Gutman et al. ('423)), such that the selection of any of these known equivalents would have been within the level of ordinary skill in the art. One would be motivated to make such a modification for better controlling the bandpass (col. 3, lines 60-65) as implied from Gutman et al. ('423).

26. Regarding claim 56, Gutman discloses an apparatus as recited above.

However, Gutman fails to disclose wherein a first optical element is a first x-ray reflective crystal and a second optical element is a second x-ray reflective crystal.

Gutman et al. ('423) teaches wherein a first optical element is a first x-ray reflective crystal and a second optical element is a second x-ray reflective crystal (col. 3, lines 40-45).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the apparatus of Gutman with the crystal of Gutman et al. ('423), since these reflective surfaces and crystals were art-recognized equivalents at the time the invention was made (col. 3, lines 34-39, of Gutman et al. ('423)), such that the selection of any of these known equivalents would have been within the level of ordinary skill in the art. One would be motivated to make such a modification for creating a simpler reflective surface.

27. Claims 45-47 and 53-56 are rejected under 35 U.S.C. 103(a) as being unpatentable Iwasaki et al. as applied to claims 43, 36, and 52 above, and further in view of Gutman et al. ('423).

28. Regarding claims 45-47, Iwasaki et al. discloses an apparatus as recited above.

However, Iwasaki et al. fails to disclose wherein one reflective surface has a substantially elliptic shape and the other reflective surface has a substantially parabolic shape, wherein at least one reflective surface has a substantially parabolic shape, or wherein both reflective surfaces have a substantially parabolic shape.

Gutman et al. ('423) teaches wherein one reflective surface has a substantially elliptic shape and the other reflective surface has a substantially parabolic shape (col. 3, lines 34-39), wherein at least one reflective surface has a substantially parabolic shape, or wherein both reflective surfaces have a substantially parabolic shape (col. 2, lines 34-36).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the apparatus of Iwasaki et al. with the shapes of Gutman et al. ('423), since these elliptic and parabolic shapes were art-recognized equivalents at the time the invention was made (col. 3, lines 34-39, of Gutman et al. ('423)), such that the selection of any of these known equivalents would have been within the level of ordinary skill in the art. One would be motivated to make such a modification for a more focused beam (col. 2, lines 37-38) as shown by Gutman et al. ('423).

29. Regarding claims 53-55, Iwasaki et al. discloses an apparatus as recited above.

However, Iwasaki et al. fails to disclose wherein a first multilayer optic and the second multilayer optic have graded d-spacing, and wherein a first multilayer optic and a second multilayer optic have depth graded d-spacing or wherein a first multilayer optic and a second multilayer optic have laterally graded d-spacing.

Gutman et al. ('423) teaches wherein a first multilayer optic and the second multilayer optic have graded d-spacing, and wherein a first multilayer optic and a second multilayer optic have depth graded d-spacing or wherein a first multilayer optic and a second multilayer optic have laterally graded d-spacing (col. 3, lines 60-63).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the apparatus of Iwasaki et al. with the d-spacing of Gutman et al. ('423), since one would be motivated to make such a modification for better controlling the bandpass (col. 3, lines 60-65) as implied from Gutman et al. ('423).

30. Regarding claim 56, Iwasaki et al. discloses an apparatus as recited above.

However, Iwasaki et al. fails to disclose wherein a first optical element is a first x-ray reflective crystal and a second optical element is a second x-ray reflective crystal.

Gutman et al. ('423) teaches wherein a first optical element is a first x-ray reflective crystal and a second optical element is a second x-ray reflective crystal (col. 3, lines 40-45).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the apparatus of Iwasaki et al. with the crystal of Gutman et al. ('423), since these reflective surfaces and crystals were art-recognized equivalents at the time the invention was made (col. 3, lines 34-39, of Gutman et al. ('423)), such that the selection of any of these known equivalents would have been within the level of ordinary skill in the art. One would be motivated to make such a modification for creating a simpler reflective surface.

Response to Arguments

31. Applicant's arguments with respect to claims 36-59 have been considered but are moot in view of the new ground(s) of rejection. Applicant's arguments filed 3/20/06 have been fully considered but they are not persuasive.

Regarding Gutman, Applicant argues that Gutman is disqualified as prior art under 35 USC 103(c). The Examiner disagrees. As noted from MPEP 706.02(l)(1), prior art only under one or more subsections of (e), (f), and (g) of section 102 qualify as prior art that shall not preclude patentability under 35 USC 103 where the subject matter and the claimed invention were, at the time the claimed invention was made, owned by the same person or subject to an obligation of assignment to the same person. Since Gutman is prior art under subsection (b) of section 102, Gutman does not apply to 35 USC 103(c). Therefore, Applicant's arguments are not persuasive, and Gutman still qualifies as prior art.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Cheng Glen Kao whose telephone number is (571) 272-2492. The examiner can normally be reached on M - F (9 am to 5 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



gk



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SUPERVISORY PATENT EXAMINER